

IN THE CLAIMS:

1. **(CURRENTLY AMENDED)** A computer-implemented method for persisting private object state data created within an object development environment, comprising the steps of:

determining the private object state data of objects used within the object development environment;

wherein the objects are queried with respect to their private object state in order to determine the private object state data;

wherein the private state data is an object's internal state data, and public state data is data that can be retrieved via public method calls or public fields;

~~storing the determined private object state data in a computer-readable file, wherein the computer-readable file is in a human-understandable format; and~~

~~restoring the private object state data by processing the computer-readable file~~

determining whether the private object state data of the objects has been modified from initial values given to the objects upon the objects' creation;

storing in a computer-readable file the private object state data that has been determined to have been modified; and

wherein the computer-readable file is in a human-understandable format, thereby allowing a text editing computer program to directly edit the computer-readable file;

restoring from the computer-readable file the private object state data that had been determined to have been modified.

2. **(ORIGINAL)** The method of claim 1 wherein the human-understandable format is a text-based format.

3. **(ORIGINAL)** The method of claim 1 further comprising the steps of:

after storing the determined private object state data in the computer-readable file, modifying the private object state data within the computer-readable file without using the object development environment; and

restoring the stored private object state data by processing the computer-readable file,

wherein the restored private object state data contains the modifications to the private object state data.

4. **(ORIGINAL)** The method of claim 1 further comprising the steps of:

after storing the determined private object state data in the computer-readable file, directly editing the computer-readable file in order to modify the private object state data within the computer-readable file; and

restoring the stored private object state data by processing the computer-readable file,

wherein the restored private object state data contains the modifications to the private object state data.

5. **(ORIGINAL)** The method of claim 1 wherein the modifications are to correct errors in object structure without using the object development environment.

6. **(ORIGINAL)** The method of claim 1 wherein an object class that specifies structure of the private object state data has been modified, said modification occurring after the private object state data has been stored in the computer-readable file, said method further comprising the step of:

restoring the private object state data from the computer-readable file even though the object class has been modified.

7. **(PREVIOUSLY AMENDED)** The method of claim 1 wherein an object class that is included in the object development environment and that specifies structure of the private object state data has been modified, said modification occurring after the private object state data has been stored in the computer-readable file, said method further comprising the step of:

restoring back into the object development environment the private object state data from the computer-readable file despite the structures differing between the modified class and the private object state data.

8. **(PREVIOUSLY AMENDED)** The method of claim 1 further comprising the steps of:

determining public and the private object state data of the objects used within the object development environment;

storing the determined public and private object state data in the computer-readable file; and

restoring the private and public object state data by processing the computer-readable file.

9. **(ORIGINAL)** The method of claim 1 wherein the object development environment is a Java development environment.

10. **(ORIGINAL)** The method of claim 1 wherein the object development environment is a Java development environment for providing graphical user interfaces.

11. **(PREVIOUSLY AMENDED)** The method of claim 1 further comprising the steps of:

determining that first private object state data is to be restored before second private object state data because of an interdependency between the first private object state data and the second private object state data;

generating the computer-readable file such that a restoration order is provided in the computer-readable file;

wherein the restoration order provided in the computer-readable file indicates that during restoration the first private object state data is to be restored before the second private object state data;

wherein the computer-readable file is in a structured format that indicates the restoration order in which the private object state data is to be restored.

12. **(ORIGINAL)** The method of claim 11 further comprising the step of:

restoring the private object state data in the order specified by the structured format of the computer-readable file.

13. **(ORIGINAL)** The method of claim 12 wherein the structured format is an XML structured format.

14. **(ORIGINAL)** The method of claim 13 wherein the XML structured format includes nested XML blocks to indicate the order in which the private object state data is to be restored.

15. **(PREVIOUSLY AMENDED)** The method of claim 1 wherein the computer-readable file is in a structured format that contains private and public object state data.

16. **(ORIGINAL)** The method of claim 1 further comprising the step of:

restoring into a different type of object development environment the private object state data from the computer-readable file.

17. **(PREVIOUSLY AMENDED)** The method of claim 16 wherein the computer-readable file has an XML structure such that the computer-readable file is configured for

being imported both into the object development environment and the different type of object development environment.

18. **(ORIGINAL)** The method of claim 16 further comprising the step of:

creating Java objects based upon the restored private object state data,  
wherein the Java objects are used within the object development environment.

19. **(ORIGINAL)** The method of claim 16 further comprising the steps of:

creating Java objects based upon the restored private object state data;  
storing the Java objects in an object hashtable; and  
retrieving a frame based upon the Java objects stored in the object  
hashtable.

20. **(ORIGINAL)** The method of claim 1 further comprising the steps of:

restoring the private object state data by processing the computer-readable  
file; and  
using the restored private object state data to generate source code.

21. **(ORIGINAL)** The method of claim 20 further comprising the step of:

using the restored private object state data to generate a different type of  
source code.

22. **(CURRENTLY AMENDED)** The method of claim 1 wherein the computer-readable file being in a human-understandable format allows for a user to modify object structures without having to reenter the object development environment~~further comprising the steps of:~~

~~————— (a) determining whether the private object state data of the objects have been modified from the initial values given to the objects upon the objects' creation; and~~

~~————— (b) storing in the computer-readable file the private object state data that has been determined in step (a) to have been modified; and~~

~~————— (c) restoring from the computer-readable file the private object state data that has been determined in step (a) to have been modified.~~

23. **(ORIGINAL)** The method of claim 1 further comprising the steps of:

determining customization hooks associated with the objects used within the object development environment;

storing the customization hooks in the computer-readable file; and

restoring the customization hooks by processing the computer-readable file.

24. **(ORIGINAL)** The method of claim 1 further comprising the steps of:

determining design time object state data associated with the objects used within the object development environment;

storing the design time object state data in the computer-readable file; and

restoring the design time object state data by processing the computer-readable file,

wherein the restored design time object state data is used during design time.

25. **(ORIGINAL)** The method of claim 24 further comprising the steps of:

determining run time object state data associated with the objects used within the object development environment;

storing the run time object state data in the computer-readable file; and

restoring the run time object state data by processing the computer-readable file,

wherein the restored run time object state data is used during run time.

26. **(CURRENTLY AMENDED)** A computer-implemented method for persisting public and private object state data created within an object development environment, comprising the steps of:

generating a node tree whose nodes store the public and private object state data;

wherein the private state data is an object's internal state data;

wherein the public state data is data that can be retrieved via public method calls or public fields;

wherein an object is queried with respect to its private object state in order to determine the private object state data;



processing the nodes of the node tree to generate nodes in an XML tree,  
wherein the nodes in the XML tree correspond to an XML tag structure; and

generating XML tags based upon the nodes in the XML tree, wherein the  
XML tags are structured so as to persist the public and private object state data;

wherein first private object state data is determined to be restored before  
second private object state data because of an interdependency between the first private  
object state data and the second private object state data;

wherein the XML tags are generated such that a restoration order is  
indicated;

wherein the restoration order indicates that during restoration the first  
private object state data is to be restored before the second private object state data.

27. **(PREVIOUSLY AMENDED)** The method of claim 26 further comprising the steps  
of:

parsing the XML tags to recover the public and private object state data;  
instantiating objects based upon the recovered public and private object  
state data; and

using the instantiated objects within the object development environment;  
wherein the public state data is data that can be retrieved via public  
method calls or public fields;

wherein the private state data is an object's internal state data.

28. **(ORIGINAL)** The method of claim 27 wherein the XML tags store design time object state data, said method further comprising the steps of:

parsing the XML tags to recover the design time object state data;

instantiating objects based upon the recovered design time object state data; and

using the instantiated objects within the object development environment such that the recovered design time object state data is used only within the object development environment.

29. **(ORIGINAL)** The method of claim 26 further comprising the steps of:

parsing the XML tags to recover the public and private object state data;

generating source code based upon the recovered public and private object state data; and

using the generated source code to perform a computer operation.

30. **(ORIGINAL)** The method of claim 26 wherein the public and private object state data comprise state data from JavaBeans.

31. **(ORIGINAL)** The method of claim 26 wherein the XML tags are structured to store state restoration order for restoring objects, said method further comprising the steps of:

parsing the XML tags to recover the public and private object state data;

instantiating objects in an order based upon the stored state restoration order, wherein the instantiating of the object recovers the public and private object state data; and

using the instantiated objects within the object development environment.

32. **(PREVIOUSLY AMENDED)** A computer-implemented apparatus for persisting private object state data created within an object development environment, comprising:

means for querying an object with respect to its private object state in order to determine private object state data;

wherein the private state data is the object's internal state data;

wherein public state data is data that can be retrieved via public method calls or public fields;

means for determining the private object state data of objects used within the object development environment;

means for determining that an interdependency exists between first private object state data and second private object state data;

means for determining that first private object state data is to be restored before second private object state data based upon the determination that an interdependency exists between the first private object state data and the second private state data;

means for storing the determined private object state data in a computer-readable file, wherein the computer-readable file is in a human-understandable format;

wherein the computer-readable file is generated such that a restoration order is provided in the computer-readable file;

means for restoring the private object state data by processing the computer-readable file.

**33. (PREVIOUSLY ADDED)** The apparatus of claim 32 further comprising:

means for customizing the serialization of an object without requiring a change to the object.

**34. (PREVIOUSLY ADDED)** The apparatus of claim 33 wherein the means for customizing the serialization of an object includes means for providing custom hooks for writing out state information of an object.

**35. (PREVIOUSLY ADDED)** The apparatus of claim 33 wherein the means for customizing the serialization of an object includes BeanStateInfo object means for writing out state information of an object.

**36. (PREVIOUSLY ADDED)** The apparatus of claim 32 further comprising:

means for serializing objects such that only properties that have not changed from their respective default values are written to the computer-readable file.